Appendix E Nobel Prizes in Nuclear Science

Many Nobel Prizes have been awarded for nuclear research and instrumentation. The field has spun off: particle physics, nuclear astrophysics, nuclear power reactors, nuclear medicine, and nuclear weapons. Understanding how the nucleus works and applying that knowledge to technology has been one of the most significant accomplishments of twentieth century scientific research. Each prize was awarded for physics unless otherwise noted.

Name(s)	Discovery	Year
Henri Becquerel, Pierre Curie, and Marie Curie	Discovered spontaneous radioactivity	1903
Ernest Rutherford	Work on the disintegration of the elements and chemistry of radioactive elements	1908 (chem)
Marie Curie	Discovery of radium and polonium	1911 (chem)
Frederick Soddy	Work on chemistry of radioactive substances including the origin and nature of radioactive isotopes	1921 (chem)
Francis Aston	Discovery of isotopes in many non-radioactive elements, also enunciated the whole-number rule of atomic masses	1922 (chem)
Charles Wilson	Development of the cloud chamber for detecting charged particles	1927
Harold Urey	Discovery of heavy hydrogen (deuterium)	1934 (chem)
Frederic Joliot and Irene Joliot-Curie	Synthesis of several new radioactive elements	1935 (chem)
James Chadwick	Discovery of the neutron	1935
Carl David Anderson	Discovery of the positron	1936
Enrico Fermi	New radioactive elements produced by neutron irradiation	1938
Ernest Lawrence	Invented the cyclotron	1939
George De Hevesy	Use of isotopes as tracers in the study of chemical processes	1943 (chem)
Otto Hahn	Discovered fission of massive nuclei	1944 (chem)
Patrick Blackett	Improved cloud chamber and discoveries in nuclear physics and cosmic rays	1948
Hideki Yukawa	Predicted the existence of mesons as the basis of the nuclear force	1949
Cecil Powell	Developed the photographic method of studying nuclear processes	1950
Edwin McMillan and Glenn Seaborg	Discoveries in the chemistries of the transuranium elements	1951 (chem)
John Cockcroft and Ernest Walton	Transmutation of nuclei by accelerated particles	1951

Felix Bloch and Edward Purcell	Measured magnetic fields in atomic nuclei (NMR)	1952
Walther Bothe	Analysis of cosmic radiation using the coincidence method	1954
Robert Hofstadter	Studied nuclear structure with electron scattering	1961
Rudulf Mössbauer	Discovery of recoilless resonance absorption of gamma rays in nuclei	1961
Eugene Wigner	Application of symmetry principles to the nucleus	1963
Maria Goeppert-Mayer and Hans Jensen	Developed the nuclear shell model	1963
Hans Bethe	Developed the theory of nuclear reactions in stars	1967
Aage Bohr, Ben Mottelson, and James Rainwater	Developed the theory of collective states in nuclei	1975
Rosalind Yalow	Study of insulin using radioactive tracers	1977 (biology)
William Fowler	Studies on the formation of nuclear reactions which produce chemical elements in astrophysical processes	1983